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ABSTRACT

This autoinstructional program deals with the study of human develpment with emphasis on the female reproductive system. It is considered as part of a secondary school human anatomy and physiology course. Students should have a previous knowledge of the parts of the female reproductive organs or system. Behavioral objectives are suggested. The teacher's guide, script, and assessment task (multiple choice quiz) are included in the packet. Approximately 12 minutes is suggested as adequate time for the lesson. (EB)

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MENSTRUATION

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TEACHER'S GUIDE

PACKET NUMBER	612.662 H
SUBJECT	Human Anatomy and Physiology
TITLE	Menstruation
LEVEL	High School
PREREQUISITE	Knowledge of parts of female reproductive parts.
BEHAVIORAL OBJECTIVES	1. To be able to order the events of the menstrual cycle. 2. To be able to identify the stage of maximum fertility in the menstrual cycle. 3. To be able to discuss briefly what occurs during each stage of the menstrual cycle. 4. To be able to list factors which may interfere with the normal events of the menstrual cycle.
EQUIPMENT	Teacher's guide Script Assessment Task (multiple choice quiz) 7 Slides, Slide viewer Cassette tape, Tape recorder
TIME	Approximately 12 minutes
SPACE REQUIRED	Carrel

SCRIPT

SCIENCE
HUMAN REPRODUCTION

As you probably know, most organisms only reproduce at certain times of the year. If organisms release their eggs into the water or on the land where they live, it is important that the environment is not harmful to these eggs. For this reason, there is only a short time of the year when most animals are fertile. Even though humans don't shed their eggs from their bodies to develop, it is still important that the environment in which the egg develops has the right conditions.

LOOK AT SLIDE ONE. You should recognize these parts of the female reproductive tract. The ovaries produce the eggs. From here the eggs are sent down the fallopian tubes until they reach the uterus. It is here that an egg will develop if it has been fertilized.

LOOK AT SLIDE TWO. Activity of the cycle begins in the ovaries. Every 28 days an egg matures in a structure called a follicle. In this slide you can see one follicle beginning its development. There are other smaller ones present which will develop at a later time. LOOK AT SLIDE THREE. Notice how the follicle and egg enlarge as they migrate towards the edge of the ovary. When they reach the edge, the follicle ruptures and releases the egg, which now enters the fallopian tube. This can be seen in SLIDE 4. The egg takes 10-14 days to mature.

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During this time there is another process occurring in the ovary. It produces a hormone which acts as a chemical messenger to the uterus. This hormone signals the uterus to prepare itself for the egg if it is fertilized. This preparation is important since, if the environment of the uterus is not ready when the fertilized egg arrives, the egg will die and no individual will form. The uterus prepares itself by building up its wall with soft tissues, blood vessels, and fluid.

Let's summarize what we have learned already. During the first fourteen days the follicle matures until the egg is ready to be released. At the same time the wall of the uterus is expanding so it will be ready to receive the egg if fertilized.

On the fourteenth day of the cycle, the egg is released from the ovary and begins its journey down the fallopian tube. The release of the egg is called ovulation. This is the time when the egg is most likely to be fertilized, since it only lives for about 8-24 hours after it has been released. LOOK AT SLIDE 5. Here the egg has left the ovary and begins to travel down the fallopian tube to the uterus.

If it is not fertilized, it dies and the lining of the uterus begins to break down. If it is fertilized, the uterus is ready

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to receive it.

After the egg is released, changes continue to occur in the uterus.

LOOK AT SLIDE SIX. After ovulation, the lining of the uterus continued to swell. It now gives off a fluid containing food substances into the uterus. If the egg gets fertilized by a sperm during its short day of life, this food will nourish the developing new embryo until it can attach itself firmly into the lining of the uterus. It takes about 4 days for the egg to travel down the fallopian tube. During this time, the lining of the uterus continues to swell. If the egg is not fertilized, this lining will begin to break down. Starting around the 28th day, the materials that made up the lining are shed from the body. This loss of tissue, blood and fluid lasts about 5 days and is called menstruation. The first day that menstruation begins is day one of the next cycle.

LOOK AT SLIDE SEVEN. In this slide the events of the cycle are summarized. On day one two things happen. The lining of the cycle before is being shed, while at the same time, a new egg and follicle begins to develop. The menstrual period lasts around 5 days. The follicle takes about 14 days to develop. In the meantime, the lining of the uterus begins to swell again, preparing to receive

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a fertilized egg. On the 14th day, the egg is released from the ovary. Since the egg will probably not live more than a day, it is during this day that a woman is most likely to become pregnant.

During the 3 or 4 days before and after the 14th day, the woman also has a chance to become pregnant. There are several reasons for this. First of all, there may be sperm present when the egg is released. Sperm also live about a day, so sperm received the day before may fertilize a newly released egg. Secondly, some eggs and sperm have been known to live considerably longer than 24 hours; therefore, increasing the period of time for fertilization. Third, the human body is not an unchanging machine. Many factors, such as sickness, or stress, can throw the timing off. For this reason, one month the egg may be released on the 10th day, while the next month, released the 17th day. The fourteenth day is a normal average, not a hard and fast rule. Another reason is that, although 28 days is the length of the average cycle, some women have cycles shorter than 20 days or longer than 60. For this reason, the general average of ovulation on the 14th day is not a good thing to count on if someone is trying to cause or prevent pregnancy.

There has been a lot said about the birth control pill, but a

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lot of people do not know how it works. The reason it works is fairly simple. Remember the hormones that were mentioned earlier? They act as a chemical signal to the body. In menstruation there are hormones released from the ovary that cause the changes in the lining of the uterus. The pill also contains hormones that act as chemical signals. These signals trick the body into thinking that it is already pregnant and, therefore, the normal cycle of producing the egg does not occur. Since the egg is not produced, the woman cannot become pregnant.

If you have any questions, rerun the tape or review the part that was not clear. Rewind the tape when you're done.

ASSESSMENT TASKS

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1. During which of the following stages is a woman most likely to become pregnant?
   a. ovulation
   b. menstruation
   c. build up of uterine wall
   d. breakdown of uterine wall

2. Which of the following stages would precede build up of uterine wall?
   a. ovulation
   b. menstruation
   c. fertilization

3. Which of the following stages involves release of the egg from the ovary?
   a. menstruation
   b. build up of uterine wall
   c. breakdown of uterine wall
   d. ovulation